In the Claims:

1. (Original) A method of reliability testing comprising:

providing a test structure;

determining a critical breakdown resistance of the test structure, wherein the critical breakdown resistance of the test structure causes a circuit to fail;

subjecting the test structure to stress conditions;

repetitively determining an operating resistance of the test structure; and

recording a critical breakdown time when the operating resistance of the test structure is equal or smaller than the critical breakdown resistance.

2. (Original) The method of claim 1 wherein the test structure comprises a substrate and a dielectric layer formed thereon.

3. (Original) The method of claim 2 wherein the dielectric layer comprises an oxide layer.

4. (Original) The method of claim 2 wherein the test structure comprises the actual device.

5. (Original) The method of claim 4 wherein the test structure comprises a transistor or capacitor.

6. (Original) The method of claim 2 wherein the test structure comprises a capacitor structure.

7. (Original) The method of claim 1 wherein the stress conditions comprise elevated voltages.

8. (Original) The method of claim 7 wherein an elevated voltage is about twice an operating voltage.

9. (Original) The method of claim 7 wherein the stress conditions comprise elevated temperatures or currents.

10. (Original) The method of claim 1 wherein the step of determining the critical breakdown resistance comprises determining the critical breakdown resistance in a circuit environment under normal operating conditions.

11. (Original) The method of claim 10 wherein the step of determining the critical breakdown resistance of the test structure comprises a circuit simulation.

12. (Original) The method of claim 1 wherein the step of determining the critical breakdown resistance of the test structure comprises a circuit simulation.

13. (Original) The method of claim 12 wherein the step of repetitively determining the operating resistance comprises determining the operating resistance after a significant change is detected in at least one electrical property.

14. (Original) The method of claim 13 wherein the electrical property comprises current or voltage.

15. (Original) The method of claim 13 further comprises repetitively determining the operating resistance after a time interval.

16. (Original) The method of claim 15 wherein the time interval is predefined according to a stress duration.

17. (Original) The method of claim 16 further comprising determining a maximum current after breakdown.

18. (Original) The method of claim 1 wherein the step of repetitively determining the operating resistance comprises repetitively determining the operating resistance after a significant change is detected in at least one electrical property.

19. (Original) The method of claim 18 wherein the electrical property comprises current or voltage.

20. (Original) The method of claim 19 further comprises repetitively determining the operating resistance after a time interval.

21. (Original) The method of claim 1 wherein the step of repetitively determining the operating resistance comprises repetitively determining the operating resistance after a time interval.

22. (Original) The method of claim 21 wherein the time interval is predefined according to a stress duration.

23. (Original) The method of claim 21 further comprising determining a maximum current after breakdown.

24. (Original) The method of claim 1 further comprising determining a maximum current after breakdown.

25. (Original) The method of claim 1 further comprising computing a reliability of the test structure from the critical breakdown time.

26. (Original) The method of claim 25 wherein the step of determining the critical breakdown resistance comprises determining the critical breakdown resistance in a circuit environment under normal operating conditions.

27. (Original) The method of claim 26 wherein the step of determining the critical breakdown resistance of the test structure comprises a circuit simulation.

28. (Original) The method of claim 27 wherein the step of repetitively determining the operating resistance comprises repetitively determining the operating resistance after a significant change is detected in at least one electrical property.

29. (Original) The method of claim 28 wherein the electrical property comprises current or voltage.

30. (Original) The method of claim 28 further comprises repetitively determining the operating resistance after a time interval.

31. (New) A method of reliability testing, the method comprising:

providing a test structure;

determining a critical breakdown resistance of the test structure;

subjecting the test structure to stress conditions;

measuring an electrical characteristic of the test structure to determine an operating resistance of the test structure;

comparing the operating resistance of the test structure to the critical breakdown resistance;

repeating the subjecting, measuring and comparing steps until the operating resistance is less than or equal to the critical breakdown resistance; and

recording a critical breakdown time when the operating resistance is less than or equal to the critical breakdown resistance.

32. (New) The method of claim 31 wherein the critical breakdown resistance comprises by performing a circuit simulation.

33. (New) The method of claim 31 wherein the test structure comprises a substrate and a dielectric layer formed thereon.

34. (New) The method of claim 33 wherein the test structure comprises a capacitor structure.

35. (New) The method of claim 31 wherein the stress conditions comprise elevated voltages.

36. (New) The method of claim 34 wherein the stress conditions comprise elevated temperatures or currents.

37. (New) The method of claim 31 wherein the step of determining the critical breakdown resistance comprises determining the critical breakdown resistance in a circuit environment under normal operating conditions.

38. (New) The method of claim 31 further comprising computing a reliability of the test structure from the critical breakdown time.